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(71) Applicant *(for all designated States except US)*: **LUPIN LTD** [IN/IN]; 159, CST Road, Kalina, Santacruz (East), Mumbai 400 098, Maharashtra (IN).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **NAGARAJA, Valakunja** [IN/IN]; Department of Microbiology & Cell Biology, Indian Institute of Science, Bangalore 560 012, Karnataka (IN). **MANJUNATHA, Ujjini, Havaldar** [IN/IN]; Department of Microbiology and Cell Biology, Indian Institute of Science, Bangalore 560 012, Karnataka (IN). **ROY, Bhairab, Nath** [IN/IN]; Lupin Ltd (Research Park), 46A/47A, Nande Village, Taluka Mulshi, Pune 411 02, Maharashtra (IN).

(74) Agents: **SUBRAMANIAM, Hariharan** et al.; Subramaniam, Nataraj & Associates, E-556, Greater Kailash-II, New Delhi 110 048 (IN).

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(54) Title: MONOCLONAL ANTIBODY DERIVED PEPTIDE INHIBITORS FOR MYCOBACTERIAL DNA GYRASE

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1   - GCCCAGGTGAAACTGCAGCAGTCTGGGGCTGAATTGGTGAGGCCTGGGGCTTCAGTGAAG -60
    - A  Q  V  K  L  Q  Q  S  G  A  E  L  V  R  P  G  A  S  V  K

61  - TTGTCCTGCAAGGCTTCTGGCTACAGCTTCACCGTCTACTATATTTACTGGGTGAAACAG -120
    - L  S  C  K  A  S  G  Y  S  F  T  V  Y  Y  I  Y  W  V  K  Q

121 - AGGCCTGGACAAGCCCTTGAGTGGATTGGAGAGATTAATCCTAGCAATGGTGGTACTAAC -180
    - R  P  G  Q  A  L  E  W  I  G  E  I  N  P  S  N  G  G  T  N

181 - TTCAATGAAAAGTTCAAGACCAAGGCCACACTGACTGTAGACAAATCCACCAGCACAGTC -240
    - F  N  E  K  F  K  T  K  A  T  L  T  V  D  K  S  T  S  T  V

241 - TACATGCAACTCAGCAGCCTGACATCTGAAGACTCTGCGGTCTATTACTGTACAAGATGG -300
    - Y  M  Q  L  S  S  L  T  S  E  D  S  A  V  Y  Y  C  T  R  W

301 - GGGTTACGACGAGGGTTTGCTTACTGGGGCCAAGGGACCACGGTCACCGTCTCCTCAAGT -360
    - G  L  R  R  G  F  A  Y  W  G  Q  G  T  T  V  T  V  S  S  S

361 - GGAGGCGGTTCAGGCGGAGGTGGCTCTGGCGGTGGCGGATCGGACATCGAGCTCACTCAG -420
    - G  G  G  S  G  G  G  G  S  G  G  G  G  S  D  I  E  L  T  Q

421 - TCTCCAAAATCCATGTCCATGTCAGTAGGAGAGAGGGTCACCTTGAGTTGCAAGGCCAGT -480
    - S  P  K  S  M  S  M  S  V  G  E  R  V  T  L  S  C  K  A  S

481 - GAGAATGTGGGTACTCATGTATCCTGGTATCAACAGAGACCAGAGGAGTCTCCTAAACTG -540
    - E  N  V  G  T  H  V  S  W  Y  Q  Q  R  P  E  E  S  P  K  L

541 - CTGATATACGGGGCATCCAACCGGTACACTGGGGTCCCCGATCGCTTCACAGGCAGTGGC -600
    - L  I  Y  G  A  S  N  R  Y  T  G  V  P  D  R  F  T  G  S  G

601 - TCTGCAACAGATTTCACTCTGACCATCAGCAATGTGCAGGCTGAAGACCTTGCAGATTAT -660
    - S  A  T  D  F  T  L  T  I  S  N  V  Q  A  E  D  L  A  D  Y

661 - CACTGTGGACAGACTTACAGCTATCCATTCACATTCGGCTTGGGGACAAAGTTGGAAATA -720
    - H  C  G  Q  T  Y  S  Y  P  F  T  F  G  L  G  T  K  L  E  I

721 - AAACGGGCGGCCGCAGGTGCGCCGGTGCCGTATCCGGATCCGCTGGAACCGCGTGCCGCA -780
    - K  R  A  A  A  G  A  P  V  P  Y  P  D  P  L  E  P  R  A  A

781 - TAG -783
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(57) **Abstract:** The present invention relates to the development of monoclonal antibodies that specifically inhibit DNA gyrase from *M. tuberculosis, M. smegmatis* and possibly from other related bacterial species. More particularly, it has been shown that the inhibition of the enzyme is by a hitherto unknown and novel mechanism. The present invention also relates to a DNA sequence of single chain antibody consisting of complementarity determining regions of mAb. The monoclonal antibody, single chain antibody and peptides derived thereof could be useful for developing lead molecules for tuberculosis therapy. The antibodies and derived materials could be useful for a variety of purposes, including diagnosis of mycobacterial infections. The present invention also relates to the modification of antibodies and derived materials for use against diverse microbial infections and other potential applications derived thereof.

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